CLAIMS

1. A composition for regenerating nerves, comprising a Pep5 polypeptide.

2. A composition according to claim 1, wherein the Pep5 polypeptide comprises:

(a) a polypeptide encoded by a nucleic acid sequence as set forth in SEQ ID NO: 1 or a fragment thereof;

(b) a polypeptide having an amino acid sequence as set forth in SEQ ID NO: 2 or a fragment thereof;

(c) a variant polypeptide having an amino acid sequence as set forth in SEQ ID NO: 2 having at least one mutation selected from the group consisting of one or more amino acid substitutions, additions, and deletions, wherein the variant polypeptide has a biological activity; or

(d) a polypeptide consisting of an amino acid sequence having at least 70% identity to any one of the polypeptides of (a) to (c), wherein the polypeptide has a biological activity.

3. A composition according to claim 1, wherein the Pep5 polypeptide comprises the whole amino acid sequence as set forth in SEQ ID NO: 2.

4. A composition according to claim 1, wherein the nerve includes spinal cord injury, cerebrovascular disorder, or brain injury.

5. A composition according to claim 1, wherein the Pep5 polypeptide further comprises a PTD domain.

6. A composition for regenerating nerves, comprising a

nucleic acid molecule encoding a Pep5 polypeptide.

7. A composition according to claim 6, wherein the nucleic acid molecule encoding the Pep5 polypeptide comprises:

(a) a polynucleotide having a base sequence as set forth in SEQ ID NO: 1 or a fragment thereof;

(b) a polynucleotide encoding an amino acid sequence as set forth in SEQ ID NO: 2 or a fragment thereof;

(c) a polynucleotide encoding a variant polypeptide having the amino acid sequence as set forth in SEQ ID NO: 2 having at least one mutation selected from the group consisting of one or more amino acid substitutions, additions, and deletions, wherein the variant polypeptide has a biological activity;

(d) a polynucleotide encoding a polypeptide hybridizable to any one of the polynucleotides of (a) to (c) under stringent conditions, wherein the polypeptide has a biological activity; or

(e) a polynucleotide consisting of a base sequence having at least 70% identity to any one of the polynucleotides of (a) to (c) or a complementary sequence thereof, wherein the polynucleotide encodes a polypeptide having a biological activity.

8. A composition according to claim 6, wherein the nucleic acid molecule encoding the Pep5 polypeptide comprises the whole nucleotide sequence in the nucleic acid sequence as set forth in SEQ ID NO: 1.

9. A composition according to claim 6, wherein the nerve includes spinal cord injury, cerebrovascular disorder, or brain injury.

10. A composition according to claim 1, wherein the nucleic acid molecule encoding the Pep5 polypeptide comprises a sequence encoding a PTD domain.

11. A composition for regenerating nerves, comprising an agent capable of specifically interacting with a Rho GDI polypeptide.

12. A composition according to claim 11, wherein the Rho GDI polypeptide comprises:

(a) a polypeptide encoded by a nucleic acid sequence as set forth in SEQ ID NO: 5 or a fragment thereof;

(b) a polypeptide having an amino acid sequence SEQ ID NO: 6 or a fragment thereof;

(c) a variant polypeptide having the amino acid sequence as set forth in SEQ ID NO: 6 having at least one mutation selected from the group consisting of one or more amino acid substitutions, additions, and deletions, wherein the variant peptide has a biological activity;

(d) a polypeptide encoded by a splice variant or allelic variant of the base sequence as set forth in SEQ ID NO: 5;

(e) a species homolog polypeptide of a polypeptide having the amino acid sequence as set forth in SEQ ID NO: 6; or

(f) a polypeptide consisting of an amino acid sequence having at least 70% identity to any one of the polypeptides of (a) to (e), wherein the polypeptide has a biological activity.

13. A composition according to claim 11, wherein the Rho GDI polypeptide comprises the entire amino acid sequence as set forth in SEQ ID NO: 6.

14. A composition according to claim 11, wherein the nerve includes spinal cord injury, cerebrovascular disorder, or brain injury.

15. A composition according to claim 11, wherein the agent comprises an antibody.

16. A composition for regenerating nerves, comprising an agent capable of specifically interacting with a nucleic acid molecule encoding a Rho GDI polypeptide.

17. A composition according to claim 16, wherein the nucleic acid encoding the Rho GDI polypeptide is a polynucleotide selected from the group consisting of:

(a) a polynucleotide having a base sequence as set forth in SEQ ID NO: 5 or a fragment sequence thereof;

(b) a polynucleotide encoding an amino acid of an amino acid sequence as set forth in SEQ ID NO: 6 or a fragment thereof;

(c) a polynucleotide encoding a variant polypeptide having the amino acid of the amino acid sequence as set forth in SEQ ID NO: 6 having at least one mutation selected from the group consisting of one or more amino acid substitutions, additions, and deletions, wherein the variant polypeptide has a biological activity;

(d) a polynucleotide which is a splice variant or allelic variant of the base sequence as set forth in SEQ ID NO: 5;

(e) a polynucleotide encoding a species homolog of a polypeptide consisting of the amino acid sequence as set forth in SEQ ID NO: 6;

(f) a polynucleotide hybridizable to any one of the

polynucleotides of (a) to (e) under stringent conditions, wherein the polynucleotide encodes a polypeptide having a biological activity; or

(g) a polynucleotide consisting of a base sequence having at least 70% identity to any one of the polynucleotides of (a) to (e) or a complementary sequence thereof, and wherein the polynucleotide encodes a polypeptide having a biological activity.

18. A composition according to claim 16, wherein the Rho GDI comprises the entire nucleic acid sequence as set forth in SEQ ID NO: 5.

19. A composition according to claim 16, wherein the nerve includes spinal cord injury, cerebrovascular disorder, or brain injury.

20. A composition according to claim 16, wherein the agent comprises an antisense molecule or RNAi.

21. A composition for regenerating nerves, comprising an agent capable of specifically interacting with a Rho polypeptide.

22. A composition according to claim 21, wherein the Rho polypeptide comprises:

(a) a polypeptide encoded by a nucleic acid sequence as set forth in SEQ ID NO: 11 or a fragment thereof;

(b) a polypeptide having an amino acid sequence SEQ ID NO: 12 or a fragment thereof;

(c) a variant polypeptide having the amino acid sequence as set forth in SEQ ID NO: 12 having at least one mutation selected from the group consisting of one or more

amino acid substitutions, additions, and deletions, wherein the variant peptide has a biological activity;

(d) a polypeptide encoded by a splice variant or allelic variant of the base sequence as set forth in SEQ ID NO: 11;

(e) a species homolog polypeptide of a polypeptide having the amino acid sequence as set forth in SEQ ID NO: 12; or

(f) a polypeptide consisting of an amino acid sequence having at least 70% identity to any one of the polypeptides of (a) to (e), wherein the polypeptide has a biological activity.

23. A composition according to claim 21, wherein the Rho polypeptide comprises amino acids 1 to 193 of the amino acid sequence as set forth in SEQ ID NO: 12.

24. A composition according to claim 21, wherein the nerve includes spinal cord injury, cerebrovascular disorder, or brain injury.

25. A composition according to claim 21, wherein the agent comprises an antibody.

26. A composition for regenerating nerves, comprising an agent capable of specifically interacting with a nucleic acid molecule encoding a Rho polypeptide.

27. A composition according to claim 26, wherein the nucleic acid molecule encoding the Rho polypeptide is a polynucleotide selected from the group consisting of:

(a) a polynucleotide having a base sequence as set forth in SEQ ID NO: 11 or a fragment sequence thereof;

(b) a polynucleotide encoding an amino acid sequence as set forth in SEQ ID NO: 12 or a fragment thereof;

(c) a polynucleotide encoding a variant polypeptide having the amino acid sequence as set forth in SEQ ID NO: 12 having at least one mutation selected from the group consisting of one or more amino acid substitutions, additions, and deletions, wherein the variant polypeptide has a biological activity;

(d) a polynucleotide which is a splice variant or allelic variant of the base sequence as set forth in SEQ ID NO: 11;

(e) a polynucleotide encoding a species homolog of a polypeptide consisting of the amino acid having the amino acid sequence as set forth in SEQ ID NO: 12;

(f) a polynucleotide hybridizable to any one of the polynucleotides of (a) to (e) under stringent conditions, wherein the polynucleotide has a biological activity; or

(g) a polynucleotide consisting of a base sequence having at least 70% identity to any one of the polynucleotides of (a) to (e) or a complementary sequence thereof, wherein the polypeptide has a biological activity.

28. A composition according to claim 26, wherein the nucleic acid molecule encoding the Rho polypeptide comprises nucleotides 1 to 579 of the nucleic acid sequence as set forth in SEQ ID NO: 11.

29. A composition according to claim 26, wherein the nerve includes spinal cord injury, cerebrovascular disorder, or brain injury.

30. A composition according to claim 26, wherein the agent comprises an antisense molecule or RNAi.

31. A composition for regenerating nerves, comprising an agent capable of specifically interacting with a Rho kinase polypeptide.

32. A composition according to claim 31, wherein the Rho kinase polypeptide comprises:

(a) a polypeptide encoded by a nucleic acid sequence as set forth in SEQ ID NO: 18 or a fragment thereof;

(b) a polypeptide having an amino acid sequence SEQ ID NO: 19 or a fragment thereof;

(c) a variant polypeptide having the amino acid sequence as set forth in SEQ ID NO: 19 having at least one mutation selected from the group consisting of one or more amino acid substitutions, additions, and deletions, wherein the variant peptide has a biological activity;

(d) a polypeptide encoded by a splice variant or allelic variant of the base sequence as set forth in SEQ ID NO: 18;

(e) a species homolog polypeptide of a polypeptide having the amino acid sequence as set forth in SEQ ID NO: 19; or

(f) a polypeptide consisting of an amino acid sequence having at least 70% identity to any one of the polypeptides of (a) to (e), wherein the polypeptide has a biological activity.

33. A composition according to claim 31, wherein the Rho kinase polypeptide comprises amino acids 1 to 1388 of the amino acid sequence as set forth in SEQ ID NO: 19.

34. A composition according to claim 31, wherein the nerve includes spinal cord injury, cerebrovascular disorder, or

brain injury.

35. A composition according to claim 31, wherein the agent comprises an antibody.

36. A composition for regenerating nerves, comprising an agent capable of specifically interacting with a nucleic acid molecule encoding a Rho kinase polypeptide.

37. A composition according to claim 36, wherein the nucleic acid molecule encoding the Rho kinase polypeptide is a polynucleotide selected from the group consisting of:

(a) a polynucleotide having a base sequence as set forth in SEQ ID NO: 18 or a fragment sequence thereof;

(b) a polynucleotide encoding an amino acid sequence as set forth in SEQ ID NO: 19 or a fragment thereof;

(c) a polynucleotide encoding a variant polypeptide having the amino acid sequence as set forth in SEQ ID NO: 19 having at least one mutation selected from the group consisting of one or more amino acid substitutions, additions, and deletions, wherein the variant polypeptide has a biological activity;

(d) a polynucleotide which is a splice variant or allelic variant of the base sequence as set forth in SEQ ID NO: 18;

(e) a polynucleotide encoding a species homolog of a polypeptide consisting of the amino acid having the amino acid sequence as set forth in SEQ ID NO: 19;

(f) a polynucleotide hybridizable to any one of the polynucleotides of (a) to (e) under stringent conditions, wherein the polynucleotide has a biological activity; or

(g) a polynucleotide consisting of a base sequence having at least 70% identity to any one of the polynucleotides

of (a) to (e) or a complementary sequence thereof, wherein the polypeptide has a biological activity.

38. A composition according to claim 36, wherein the nucleic acid molecule encoding the Rho kinase polypeptide comprises nucleotides 1 to 4164 of the nucleic acid sequence as set forth in SEQ ID NO: 18.

39. A composition according to claim 36, wherein the nerve includes spinal cord injury, cerebrovascular disorder, or brain injury.

40. A composition according to claim 36, wherein the agent comprises an antisense molecule or RNAi.

41. A composition for regenerating nerves, comprising a PTD domain and a nerve regeneration agent.

42. A composition according to claim 41, wherein the nerve regeneration agent inhibits a p75 signal transduction pathway.

43. A composition according to claim 41, wherein the nerve regeneration agent comprises a transduction agent in the p75 signal transduction pathway or a variant or fragment thereof, or an agent capable of specifically interacting with the transduction agent in the p75 signal transduction pathway.

44. A composition according to claim 43, wherein the transduction agent in the p75 signal transduction pathway comprises at least one transduction agent selected from the group consisting of MAG, PKC, IP_3, GT1b, p75, Rho GDI, Rho,

p21, and Rho kinase.

45. A composition according to claim 41, wherein the nerve regeneration agent has at least one action selected from the group consisting of inhibition of an interaction between MAG and GT1b, inhibition of PKC, activation of IP_3, inhibition of an interaction between GT1b and p75, inhibition of an interaction between p75 and Rho, inhibition of an interaction between p75 and Rho GDI, maintenance or enhancement of an interaction between Rho and Rho GDI, inhibition of conversion from Rho GDP to Rho GTP, inhibition of an interaction between Rho and Rho kinase, and inhibition of an activity of Rho kinase.

46. A composition according to claim 41, wherein the nerve regeneration agent comprises at least one agent selected from the group consisting of an agent capable of suppressing or extinguishing an interaction between MAG and GT1b, an agent capable of inhibiting PKC, an agent capable of activating IP_3, an agent capable of suppressing or extinguishing an interaction between GT1b and p75, an agent capable of suppressing or extinguishing an interaction between p75 and Rho GDI, an agent capable of suppressing or extinguishing an interaction between p75 and Rho, an agent capable of maintaining or enhancing an interaction between Rho and Rho GDI, an agent capable of inhibiting conversion from Rho GDP to Rho GTP, an agent capable of inhibiting an interaction between Rho and Rho kinase, and an agent capable of inhibiting an activity of Rho kinase.

47. A composition according to claim 41, wherein the nerve regeneration agent comprises an agent selected from the group consisting of a Pep5 polypeptide, a nucleic acid molecule

encoding the Pep5 polypeptide, an agent capable of inhibiting PKC, an agent capable of activating IP_3, an agent capable of specifically interacting with a p75 polypeptide, an agent capable of specifically interacting with a nucleic acid molecule encoding the p75 polypeptide, a p75 extracellular domain polypeptide, a nucleic acid molecule encoding the p75 extracellular domain polypeptide, an agent capable of specifically interacting with a Rho GDI polypeptide, an agent capable of specifically interacting with a nucleic acid molecule encoding the Rho GDI polypeptide, the Rho GDI polypeptide, a nucleic acid encoding the Rho GDI polypeptide, an agent capable of specifically interacting with a MAG polypeptide, an agent capable of specifically interacting with a nucleic acid molecule encoding the MAG polypeptide, a p21 polypeptide, a nucleic molecule encoding p21, an agent capable of specifically interacting with a Rho polypeptide, an agent capable of specifically interacting with a nucleic acid molecule encoding the Rho polypeptide, an agent capable of specifically interacting with a Rho kinase and an agent capable of specifically interacting with a nucleic acid molecule encoding the Rho kinase, and variants and fragments thereof.

48. A composition according to claim 41, wherein the PTD domain comprises an amino acid sequence of YGRKKRRQRRR or the amino acid sequence having one or more substitutions, additions and/or deletions.

49. A composition according to claim 41, wherein the PTD domain is located at the C-terminus or the N-terminus of the p21 polypeptide.

50. A composition according to claim 41, wherein the nerve

regeneration agent is capable of residing in the cytoplasm.

51. A composition for regenerating nerves, comprising a nucleic acid molecule comprising a nucleic acid sequence encoding a PTD domain and a nucleic acid sequence encoding a nerve regeneration agent.

52. A composition according to claim 51, wherein the nerve regeneration agent inhibits a p75 signal transduction pathway.

53. A composition according to claim 51, wherein the nerve regeneration agent comprises a transduction agent in the p75 signal transduction pathway or a variant or fragment thereof, or an agent capable of specifically interacting with the transduction agent in the p75 signal transduction pathway.

54. A composition according to claim 53, wherein the transduction agent in the p75 signal transduction pathway comprises at least one transduction agent selected from the group consisting of MAG, PKC, IP_3, GT1b, p75, Rho GDI, Rho, p21 and Rho kinase.

55. A composition according to claim 51, wherein the nerve regeneration agent has at least one action selected from the group consisting of inhibition of an interaction between MAG and GT1b, inhibition of PKC, activation of IP_3, inhibition of an interaction between GT1b and p75, inhibition of an interaction between p75 and Rho, inhibition of an interaction between p75 and Rho GDI, maintenance or enhancement of an interaction between Rho and Rho GDI, inhibition of conversion from Rho GDP to Rho GTP, inhibition of an interaction between

Rho and Rho kinase, and inhibition of an activity of Rho kinase.

56. A composition according to claim 51, wherein the nerve regeneration agent comprises at least one agent selected from the group consisting of an agent capable of suppressing or extinguishing an interaction between MAG and GT1b, an agent capable of suppressing or extinguishing an interaction between GT1b and p75, an agent capable of inhibiting PKC, an agent capable of activating IP_3, an agent capable of suppressing or extinguishing an interaction between p75 and Rho GDI, an agent capable of suppressing or extinguishing an interaction between p75 and Rho, an agent capable of maintaining or enhancing an interaction between Rho and Rho GDI, an agent capable of inhibiting conversion from Rho GDP to Rho GTP, an agent capable of inhibiting an interaction between Rho and Rho kinase, and an agent capable of inhibiting an activity of Rho kinase.

57. A composition according to claim 51, wherein the nerve regeneration agent comprises an agent selected from the group consisting of a Pep5 polypeptide, an agent capable of inhibiting PKC, an agent capable of activating IP_3, an agent capable of specifically interacting with a p75 polypeptide, an agent capable of specifically interacting with a nucleic acid molecule encoding the p75 polypeptide, a p75 extracellular domain polypeptide, the Rho GDI polypeptide, an agent capable of specifically interacting with a MAG polypeptide, an agent capable of specifically interacting with a nucleic acid molecule encoding the MAG polypeptide, a p21 polypeptide, an agent capable of specifically interacting with a Rho polypeptide, an agent capable of specifically interacting with a nucleic acid molecule

encoding the Rho polypeptide, an agent capable of specifically interacting with a Rho kinase and an agent capable of specifically interacting with a nucleic acid molecule encoding the Rho kinase, and variants and fragments thereof.

58. A composition according to claim 51, wherein the PTD domain comprises an amino acid sequence of YGRKKRRQRRR or the amino acid sequence having one or more substitutions, additions and/or deletions.

59. A composition according to claim 51, wherein the nucleic acid sequence encoding the PTD domain is located at the 5′-terminus or the 3′-terminus of the p21 polypeptide.

60. A composition according to claim 51, wherein the nerve regeneration agent is capable of residing in the cytoplasm.

61. A composition for modulating nerve regeneration, comprising an agent capable of inhibiting a p75 signal transduction pathway, wherein a transduction agent of the p75 signal transduction pathway comprises PKC and IP_3.

62. A composition according to claim 61, further comprising at least one agent selected from the group consisting of an agent capable of modulating PKC and an agent capable of modulating IP_3.

63. A composition according to claim 61, further comprising both an agent capable of modulating PKC and an agent capable of modulating IP_3.

64. A composition according to claim 61, further comprising

an agent capable of inhibiting PKC.

65. A composition according to claim 61, further comprising an agent capable of inhibiting IP_3.

66. A composition according to claim 61, wherein the agent capable of modulating the p75 signal transduction pathway comprises an agent capable of modulating at least one transduction agent selected from the group consisting of MAG, PKC, IP_3, GT1b, p75, Rho GDI, Rho, p21, and Rho kinase.

67. A composition according to claim 61, wherein the agent capable of modulating the p75 signal transduction pathway comprises an agent capable of modulating RhoA.

68. A composition according to claim 61, wherein the agent capable of modulating the p75 signal transduction pathway comprises an agent capable of activating RhoA and an agent capable of inhibiting PKC, and the modulation of nerve regeneration is activation of nerve regeneration.

69. A composition according to claim 68, further comprising an agent capable of activating IP_3.

70. A composition according to claim 62, wherein the agent capable of modulating PKC is selected from the group consisting of MAG, Nogo and p75.

71. A composition according to claim 62, wherein the agent capable of modulating IP_3 is selected from the group consisting of MAG, Nogo and p75.

72. A composition according to claim 61, wherein the nerve

regeneration is carried out *in vivo* or *in vitro*.

73. A composition according to claim 61, wherein the nerve includes spinal cord injury, cerebrovascular disorder, or brain injury.

74. A composition according to claim 62, wherein the agent is bound to a PTD domain.

75. A composition for treatment, prophylaxis, diagnosis or prognosis of nervous diseases, nervous disorders and/or nervous conditions, comprising an agent capable of modulating a p75 signal transduction pathway.

76. A composition according to claim 75, further comprising at least one agent selected from the group consisting of an agent capable of modulating PKC and an agent capable of modulating IP_3.

77. A composition according to claim 75, further comprising both an agent capable of modulating PKC and an agent capable of modulating IP_3.

78. A composition according to claim 75, further comprising an agent capable of inhibiting PKC.

79. A composition according to claim 75, further comprising an agent capable of inhibiting IP_3.

80. A composition according to claim 75, wherein the agent capable of modulating the p75 signal transduction pathway comprises an agent capable of modulating at least one transduction agent selected from the group consisting of

MAG, PKC, IP_3, GT1b, p75, Rho GDI, Rho, p21, and Rho kinase.

81. A composition according to claim 75, wherein the agent capable of modulating the p75 signal transduction pathway comprises an agent capable of modulating RhoA.

82. A composition according to claim 75, wherein the agent capable of modulating the p75 signal transduction pathway comprises an agent capable of activating RhoA and an agent capable of inhibiting PKC, and the modulation of nerve regeneration is activation of nerve regeneration.

83. A composition according to claim 82, further comprising an agent capable of activating IP_3.

84. A composition according to claim 76, wherein the agent capable of modulating PKC is selected from the group consisting of MAG, Nogo and p75.

85. A composition according to claim 76, wherein the agent capable of modulating IP_3 is selected from the group consisting of MAG, Nogo and p75.

86. A composition according to claim 75, wherein the nerve regeneration is carried out *in vivo* or *in vitro*.

87. A composition according to claim 75, wherein the nerve includes spinal cord injury, cerebrovascular disorder, or brain injury.

88. A composition according to claim 76, wherein the agent is bound to a PTD domain.

89. A composition, comprising an agent capable of inhibiting a p75 signal transduction pathway.

90. A composition for treatment, prophylaxis, diagnosis or prognosis of nervous diseases, nervous disorders and/or nervous conditions, comprising an agent capable of modulating a p75 signal transduction pathway, wherein the agent capable of modulating the p75 signal transduction pathway comprises at least one agent selected from the group consisting of an agent capable of modulating PKC and an agent capable of modulating IP_3.

91. A composition for disrupting or reducing inhibition of neurite outgrowth, comprising an agent capable of inhibiting a p75 signal transduction pathway.

92. A composition for constructing a network of neurons, comprising an agent capable of inhibiting a p75 signal transduction pathway.

93. A composition for regenerating nerves, comprising an agent capable of specifically interacting with a p75 polypeptide.

94. A composition for regenerating nerves, comprising a p75 extracellular domain polypeptide.

95. A composition for regenerating nerves, comprising a p21 polypeptide.

96. A composition for regenerating nerves, comprising a nucleic acid molecule encoding a p21 polypeptide.

97. A kit for treatment of neurological diseases, comprising:

(A) a cell population regenerated with a composition comprising an agent capable of inhibiting a p75 signal transduction pathway; and

(B) a container for preserving the cell population.

98. A method for regenerating nerves, comprising the step of:

inhibiting a p75 signal transduction pathway.

99. A method for treatment, prophylaxis, diagnosis or prognosis of nervous diseases, nervous disorders and/or nervous conditions, comprising the step of:

modulating a p75 signal transduction pathway in a subject in need of or suspected of being in need of the treatment, prophylaxis, diagnosis or prognosis.

100. A method for modulating nerve regeneration, comprising the step of:

modulating a p75 signal transduction pathway.

101. A method for disrupting or reducing inhibition of neurite outgrowth, comprising the step of:

inhibiting a p75 signal transduction pathway.

102. A method for constructing a network of neurons, comprising the step of:

inhibiting a p75 signal transduction pathway in the neuron.

103. A method for treating neurological diseases, comprising the steps of:

(a) providing a cell population regenerated with a

composition comprising an agent capable of inhibiting a p75 signal transduction pathway; and

(b) transplanting the cell population to a patient.

104. A method for treatment, prophylaxis, diagnosis or prognosis of nervous diseases, nervous disorders and/or nervous conditions, comprising the step of:

modulating a p75 signal transduction pathway in a subject in need of or suspected of being in need of the treatment, prophylaxis, diagnosis or prognosis,

wherein a transduction agent of the p75 signal transduction pathway comprises PKC and IP_3.

105. A screening method for identifying an agent which induces nerve regeneration, comprising the steps of:

(a) contacting at least two agents capable of interacting with each other in a p75 signal transduction pathway in the presence of a test agent; and

(b) comparing a level of an interaction between the at least two agents in the presence of a test agent with a level of an interaction of the at least two agents in the absence of the test agent,

wherein the test agent is identified as an agent for regenerating nerves when the level of the interaction in the presence of the test agent is reduced as compared to the level of the interaction in the absence of the test agent.

106. A modulating agent, identified by a method according to claim 105.

107. A pharmaceutical composition, comprising a modulating agent according to claim 106.

108. A method for prophylaxis or treatment of neurological diseases, disorders or conditions, comprising the step of:

administering a pharmaceutical composition according to claim 107 to a subject.

109. A vector, comprising at least one nucleic acid molecule selected from the group consisting of a nucleic acid molecule encoding a MAG polypeptide, a nucleic acid molecule encoding a p75 polypeptide, a nucleic acid encoding a Rho GDI polypeptide, a nucleic acid molecule encoding Rho, a nucleic molecule encoding p21, and a nucleic acid molecule encoding Rho kinase, wherein the at least one nucleic acid molecule has a sequence comprising an introduced sequence different from a sequence of a wild type of the at least one nucleic acid molecule.

110. A cell, comprising a vector according to claim 109.

111. A tissue, comprising a vector according to claim 109.

112. An organ, comprising a vector according to claim 109.

113. An organism, comprising a vector according to claim 109.

114. A nerve-modified transgenic animal, transformed with a vector according to claim 109.

115. A nerve-modified knockout animal, wherein at least one nucleic acid molecule selected from the group consisting of a nucleic acid molecule encoding a MAG polypeptide, a nucleic acid molecule encoding a p75 polypeptide, a nucleic acid encoding a Rho GDI polypeptide, a nucleic acid molecule encoding Rho, a nucleic molecule encoding p21, and a nucleic

acid molecule encoding a Rho kinase, is deleted.